561
+ 498

SERVICE MANUAL

FISHER

Full Auto Reverse CarFidelity Receiver/ Cassette Player

AX1835

(EUROPE)

PRODUCT CODE No. 147 578 59

This service manual is prepared for Model AX1835. As only the components in the chart below differ, refer to the service manual AX835 (WM-22115) for other components.

Ref. No.	AX835	AX1835	DESCRIPTION	Q'ty
	INDIVIDUAL			
	R-4079910	632 510 8674	INDIVIDUAL CARTON CASE	1
	ACCESSORY			
	R-47701963	632 510 8681	INSTRUCTION BOOK	1
	632 507 3361	632 510 8698	IDENTIFICATION CARD	1
	CABINET			
1	R-A708604	632 510 8704	NOSE PANEL ASS'Y	1
	R-47701964	632 510 8636	RATING LABEL	1
	CHASSIS			
13	R-1277428	632 510 8643	METAL CASING	1

Add this sheet Model AX835 Service Manual (WM-22115).

FISHER Hi-Fi Europe Vertriebe GmbH
Stanlgruerring 4 Tel: 089/420 45-0
8000 München 82 Tlx: 524033

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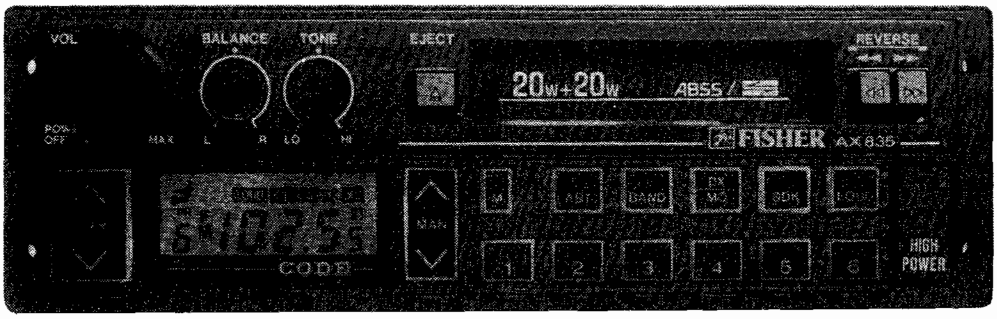
FISHER

Service Manual

Full Auto Reverse CarFidelity Receiver/ Cassette Player

AX 835 (EUROPE)



PRODUCT CODE No.
147 578 34

Specifications

Tuner Section FM
Tuning Range (MHz)...87.5—108 MHz
Channel Spacing
(kHz).........................50 kHz (Auto)
Sensitivity
(150 ohms)................2 µV
Limiting
Sensitivity...............4 µV
Auto Seek
Stop Level.................10 µV
Image Rejection........70 dB
Selectivity (300 kHz)...65 dB
AM-Suppression ....40 dB
Capture Ratio............2 dB
THD Mono..................0.3%
Stereo................0.5%
Frequency Response
(−4.5dB)..............40—12,500 Hz
Channel Separation
(1,000 Hz)................35 dB

Tuner Section AM
Tuning Range MW ....522—1,620 kHz
Channel Spacing
MW ....9 kHz
(Auto, manual)
Frequency
Response
(−4.5dB)..............50—2,000 Hz
Image Rejection
(1,400 kHz) ....55 dB
Selectivity (9 kHz) .....±80 dB

Cassette Section
Max. Speed
Deviation ....±3.0%
Wow and Flutter
(DIN)..........................0.15%
Max. Winding
Speed (C-60).............90 sec.
Frequency
Response.................63—12,500 Hz
S/N Ratio....................52 dB
Crosstalk (1,000 Hz) ...40 dB

General
Output Power
2 channel 10% ......2x14 watts
Max.......2x20 watts
DC Power Supply......11—16 volts
Current Drain
(Power off) ....10 mA
(Power on)..............6A Max.
Dimensions
(WxHxD)...................178x50x150 mm
Weight........................1.2 kg

The above mentioned specification are mainly based on the IHF measurement standard.
They can therefore not directly be compared with specifications based on the DIN standard or other standards.

REFERENCE No. WM-22115 40

ALIGNMENT PROCEDURES

General

Test Conditions

Signal generator output;

Modulation frequency 1000 Hz

Modulation percentage 30%

Signal level just high enough to provide meter deflection.

Signal application;

Antenna receptacle through the dummy antenna.

Output meter connection;

Across the speaker or dummy load 4 ohms.

Setting of radio controls;

Volume control at maximum response.

Tone control at the center position.

Power supply 14.0V

* Location of the components for alignment are shown in MAIN PARTS IDENTIFICATION ILLUSTRATION (TOP VIEW).

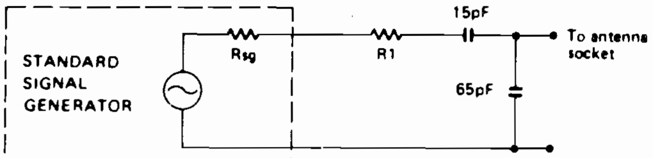
Alignment of Head Azimuth

1. Insert a BASF 10kHz standard test tape and set the unit in play mode.
2. Tune the azimuth adjusting screw until you obtain maximum reading on the VTVM.

MW and RF Alignment

Step	Signal	Frequency	Dial Set	Test Equipment	Adjustment
1	MW	——	522 kHz	Connect a voltage meter to TP301 and common GND	Adjust T307 for voltage to be 1.2V.
2	Through Dummy ANT Fig. 1	603 kHz	603 kHz	Connect VTVM to output terminal	Tune T301, 303 for maximum output.
3		999 kHz	999 kHz		Tune T305, 306 for maximum output.
4	MW 37dBμ	999 kHz Stop sens	999 kHz	Connect voltage meter to TP300	Adjust SVR300 for voltage to be 2.5V

Figure 1 DUMMY ANTENNA FOR MW ALIGNMENT



R1 = 80 – Rsg (ohms)

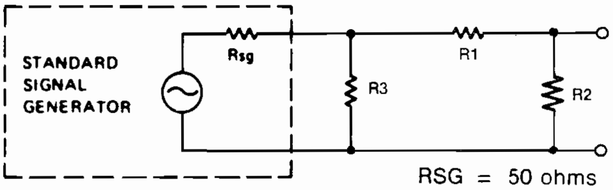
Rsg. Internal resistance of a signal generator used

FM RF Alignment

Step	Signal input	Frequency of signal Generator	Dial Setting of Radio	Test equipment connection	Adjustment
1	Through dummy ANT Fig. 2	98.000MHz	98.000MHz	Connect VTVM to speaker output leads.	Tune T401, T202 for maximum output.
2		98.000MHz 60dBμV	98.000MHz	Connect voltage meter to the speaker terminal	Adjust main VR for 1.4V
3		97.950MHz	98.000MHz	Connect voltage meter to the speaker terminal	Adjust T202 for voltage to be 0.7V
4		98.000MHz	98.000MHz	Connect voltage meter to the speaker terminal	Adjust SVR301 for 3db limiting to be 14db
5		98.000MHz (40±3dBμ)	98.000MHz		At local position, Adjust SVR203 for auto search stop sensitivity

NOTE 1. When you adjust step 2, use only plastic driver.

Figure 2 DUMMY ANTENNA FOR FM RF ALIGNMENT



RSG = 50 ohms
R1 = 130 ohms
R2 = 1620 ohms
R3 = 61.9 ohms

Rsg; Internal resistance of a S.S.G.

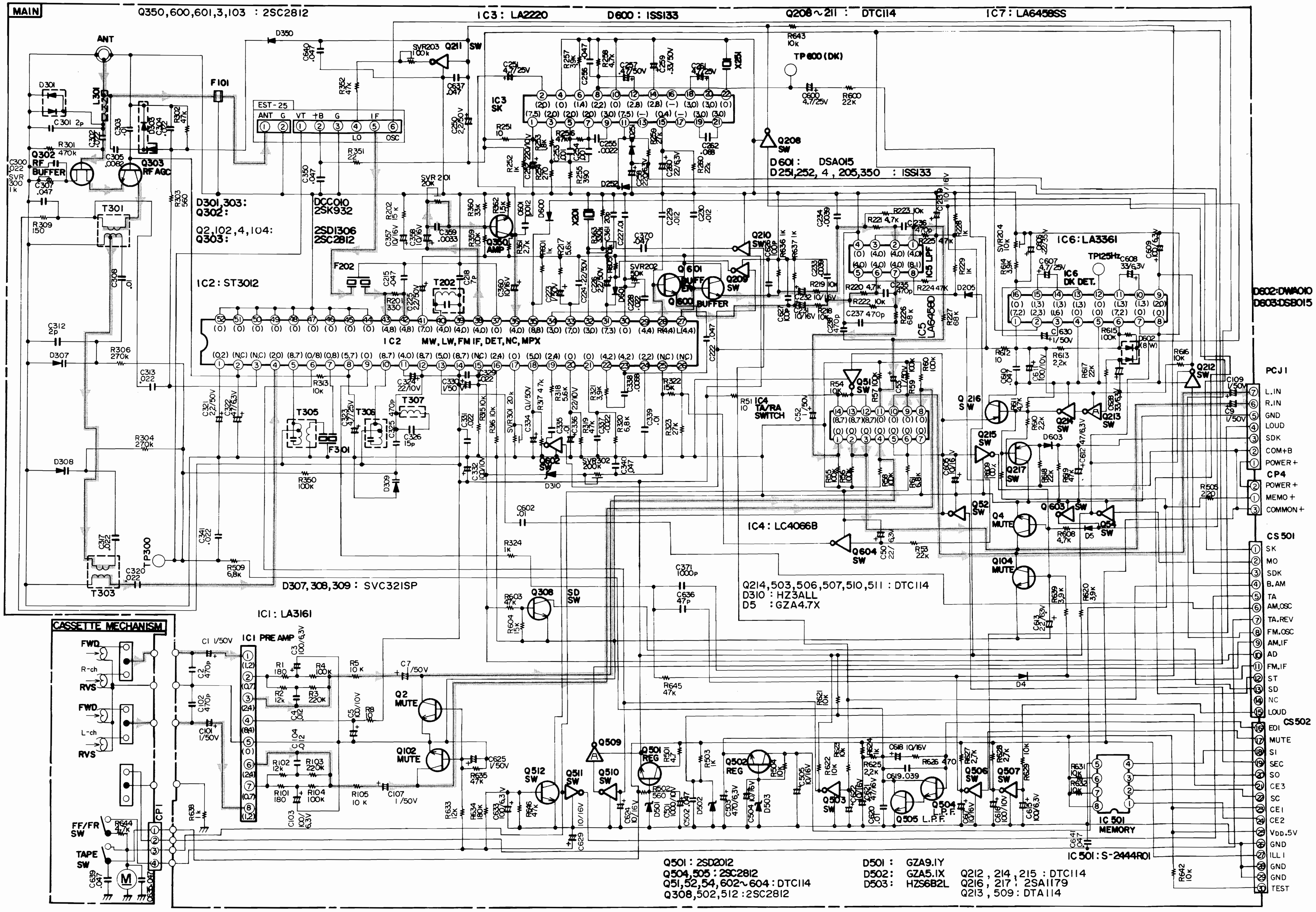
Multiplex Alignment (PLL)

PRELIMINARIES:

1. A stereo signal modulator (SSM) is necessary to perform this alignment.
2. All adjustments below must be done, setting the frequency at 98MHz on LCD display and applying 60dB FM signal modulated by specified signals as described below.
3. MPX button should be placed in stereo position during FM multiplex alignment.

Step	Alignment	Instrument Connections		Adjustment
		Input	Output	
1	Pilot Canceling	Apply FM stereo signal modulated only by 8% pilot signal to antenna terminal through dummy ANT.	Connect VTVM to speaker output of Left and Right Channel.	Adjust SVR202 to minimum output on VTVM.
2	10dB (SNC) Separation control	In addition Set the output signal under input level of 32dB	Connect VTVM to speaker output leads of Left and Right channel.	Adjust the SVR302 to make separation of $10\mathrm{dB}^{+5\mathrm{dB}}_{-0\mathrm{dB}}$ between Left and Right channel.
3	Maximum Separation control	Apply FM stereo signal modulated only by 8% pilot signal and 30% stereo signal through dummy ANT to antenna terminal. Set the output select switch of SSG to the Left mode.	Connect VTVM to the Right Speaker terminal	Adjust SVR201 to minimum output on VTVM.
4	——	——	——	Repeat step 2. step 3.

SCHEMATIC DIAGRAM

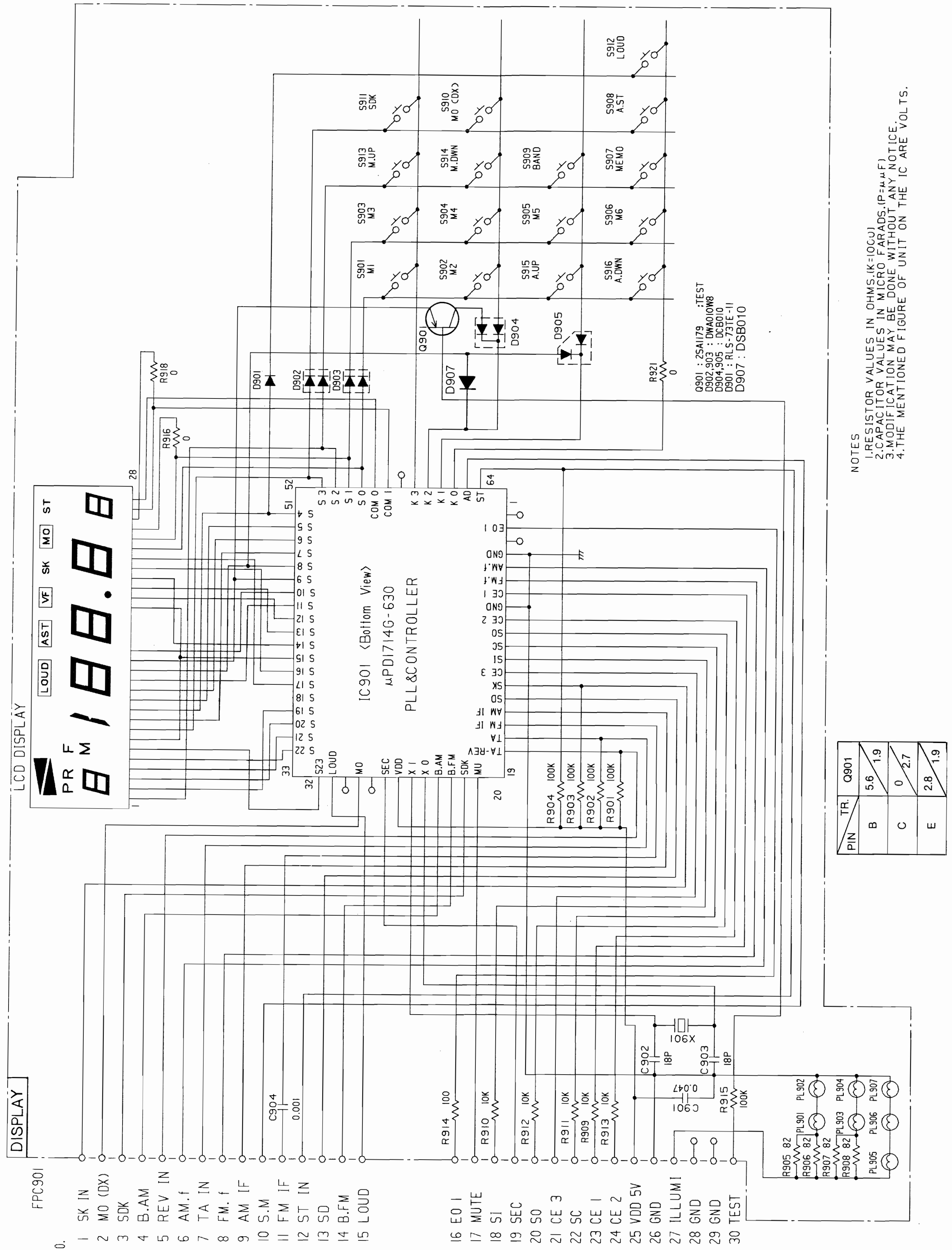

MAIN
Q350,600,601,3,103 : 2SC2812
IC3 : LA2220
D600 : ISS133
Q208～211 : DTC114
IC7 : LA6458SS
ANT
F101
EST-25
ANT G VT +B G IF
LO OSC
Q302 RF BUFFER
Q303 RF AGC
D301,303 : Q302 :
Q2,102,4,104 : Q303 :
DCC010 2SK932
2SD1306 2SC2812
IC2 : ST3012
IC2 MW, LW, FM IF, DET, NC, MPX
IC3 SK
Q211 SW
Q208 SW
D601 : DSA015
D251,252, 4, 205,350 : ISS133
TP600 (DK)
Q350 AMP
Q601 BUFF
Q600 BUFFER
Q210 SW
Q209 SW
IC5 LPF
IC5 LA6458D
IC6 : LA3361
IC6 DK DET.
TP125Hz
D602 : DWA010
D603 : DSB015
IC4 TA/RA SWITCH
IC4 : LC4066B
Q216 SW
Q217 SW
Q214 SW
Q213 SW
Q215 SW
Q212 SW
Q4 MUTE
Q104 MUTE
Q52 SW
Q51 SW
Q603 SW
Q54 SW
Q604 SW
Q308 SD SW
D307,308,309 : SVC321SP
Q214,503,506,507,510,511 : DTC114
D310 : HZ3ALL
D5 : GZA4.7X
PCJ1
L.IN
R.IN
GND
LOUD
SDK
COM+B
POWER+
CP4
POWER+
MEMO+
COMMON+
CS501
SK
MO
SDK
B.AM
TA
AM.OSC
TA.REV
FM.OSC
AM.IF
AD
FM.IF
ST
SD
NC
LOUD
CS502
EDI
MUTE
SI
SEC
SO
CE3
SC
CE1
CE2
VDD.5V
GND
ILL I
GND
GND
TEST
CASSETTE MECHANISM
FWD
R-ch
RVS
FWD
L-ch
RVS
FF/FR SW
TAPE SW
CP1
IC1 : LA3161
IC1 PRE AMP
Q2 MUTE
Q102 MUTE
Q512 SW
Q511 SW
Q510 SW
Q509
Q501 REG
Q502 REG
Q503 SW
Q505 L.P.F.
Q504 L.P.F.
Q506 SW
Q507 SW
IC501 MEMORY
IC501 : S-2444R01
Q501 : 2SD2012
Q504,505 : 2SC2812
Q51,52,54,602～604 : DTC114
Q308,502,512 : 2SC2812
D501 : GZA9.1Y
D502 : GZA5.1X
D503 : HZS6B2L
Q212, 214, 215 : DTC114
Q216, 217 : 2SA1179
Q213, 509 : DTA114

PIN \ Q	Q302
G	0
S	1.7
D	0

PIN \ Q	Q303
B	N C
C	7.1
E	NC

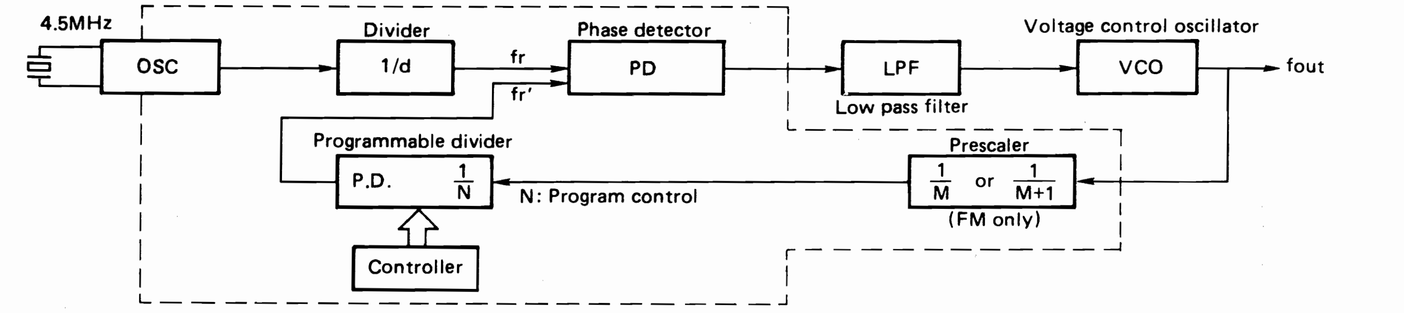
Q308	Q 2	Q102	Q512	Q511	Q509	Q510	Q501	Q502	Q503	Q504	Q505	Q506	Q507	Q 4	Q104	Q603	Q 54	Q604	Q 52	Q 51	Q602	Q213	Q214	Q215	Q216	Q217	Q600	Q601	Q209	Q210	Q350	Q211	Q212	Q208
N C	0/0.7	0/0.7	0/0.7	0/13.8	8.8/0	0/4.7	9.5	6.3	3.2/0	1.1	0.6	5.5/0	0/3.3	0/0.7	0/0.7	217/0	0/5.6	26/0	0/5.5	0/6.4	0/7.6	7.5/5.9	0/6.7	6.4/0.7	9.5/0	9.5/0	4.5	4.5	0/7.3	5.5/0	2.1	0/1.9	0/5.6	0/6.3
N C	0/0	0/0	6.4/0	5.3/0	0/7.6	8.8/0	13.3	13.3	0/4.7	N C	N C	0/8.4	8.7/0	0/0	0/0	0/2.0	64/0	0/NC	64/0	8.9/0	0/0	0/6.9	9.5/0	0/0	0/0	0/0	8.9	8.9	8.5/0	0/0.7	6.3	NC/0	2.1/0	0/0
0	0/0	0/0	0/0	0/0	8.9/8.9	0/0	8.9	5.6	0/0	0.6	0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	7.5/7.0	0/0	0/0	6.4/0.7	1.2/0.6	3.9	3.9	0/0	0/0	1.5	0/0	0/0	0/0

SCHEMATIC DIAGRAM


LCD DISPLAY
LOUD
AST
VF
SK
MO
ST
P
R
F
M
IC901 〈Bottom View〉
μPD1714G-630
PLL&CONTROLLER
S911 SDK
S910 MO (DX)
S912 LOUD
S908 A.ST
S913 M.UP
S914 M.DWN
S909 BAND
S907 MEMO
S903 M3
S904 M4
S905 M5
S906 M6
S901 M1
S902 M2
S915 A.UP
S916 A.DWN
Q901
D901
D902
D903
D904
D905
D907
R918
R916
R921
R904 100K
R903 100K
R902 100K
R901 100K
106X
C902 18P
C903 18P
C901 0.047
R915 100K
C904 0.001
R914 100
R910 10K
R912 10K
R911 10K
R909 10K
R913 10K
R905 82
R906 82
R907 82
R908 82
PL901
PL902
PL903
PL904
PL905
PL906
PL907
Q901 : 2SA1179 :TEST
D902,903 : DWA010W8
D904,905 : DCB010
D901 : RLS-73TE-11
D907 : DSB010
NOTES
1.RESISTOR VALUES IN OHMS.(K=1000)
2.CAPACITOR VALUES IN MICRO FARADS.(P=μμF)
3.MODIFICATION MAY BE DONE WITHOUT ANY NOTICE.
4.THE MENTIONED FIGURE OF UNIT ON THE IC ARE VOLTS.
TR. Q901
PIN B 5.6 1.9
C 0 2.7
E 2.8 1.9
DISPLAY
FPC901
NO.
1 SK IN
2 MO (DX)
3 SDK
4 B.AM
5 REV IN
6 AM.f
7 TA IN
8 FM.f
9 AM IF
10 S.M
11 FM IF
12 ST IN
13 SD
14 B.FM
15 LOUD
16 EO 1
17 MUTE
18 SI
19 SEC
20 SO
21 CE 3
22 SC
23 CE 1
24 CE 2
25 VDD 5V
26 GND
27 ILLUMI
28 GND
29 GND
30 TEST

CIRCUIT DESCRIPTION

1. BASIC OPERATION OF PULL FREQUENCY SYNTHESIZER


4.5MHz
OSC
Divider
1/d
fr
fr'
Phase detector
PD
LPF
Low pass filter
Voltage control oscillator
VCO
fout
Programmable divider
P.D. 1/N
N: Program control
Prescaler
1/M or 1/M+1
(FM only)
Controller

The illustration above is a block diagram which is a fundamental PLL frequency synthesizer.

In order to obtain reference frequency fr, the frequency of 4.5 MHz generated from a crystal oscillator (OSC) is passed into a divider circuit of l/d.

This fr is compared with fr', and runs through phase detector (PD) and low pass filter (LPF) to be inverted to direct-current signal, which is then applied as varicap voltage of voltage control oscillator (VCO), thereby controlling the oscillation frequency.

This oscillation frequency fout is divided down to l/N by programmable divider (PD), so that one closed loop is fixed in the relation of

fout = frxN

therefore, the operation of PLL is stabilized

In the case of automatic channel selection, the dividing ratio N is altered by the PD by a command from controller, and fout is changed accordingly.

Programmable divider

Since the oscillation frequency of VCO is very high as compared with fr, it is divided down to l/N (in the case of AM) to decrease the difference from fr in this circuit.

Phase detector

This is a circuit to detect the difference in frequency and phase between reference frequency fr and comparison frequency fr' in terms of pulses.

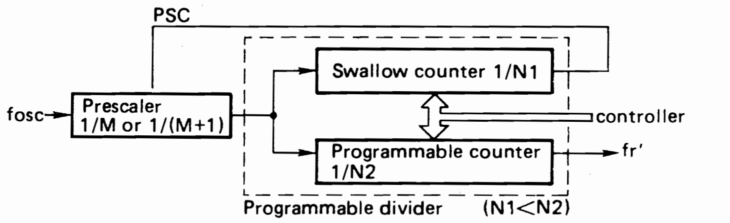
Low pass filter

This circuit is intended to vary and fix the output voltage in order to deliver a varicap voltage necessary for desired VCO frequency, on the basis of the output of the phase detector.

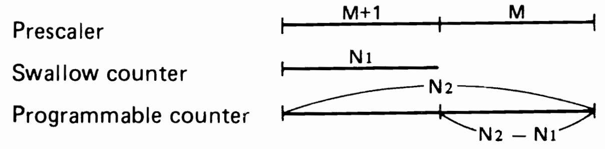
Prescaler

The local oscillation frequency in FM is higher than the operating speed of the programmable divider of PLL, thereby opposing to accurate operation. To avoid this, the local oscillation frequency is preliminarily divided down in this circuit to a proper frequency permitting reliable operation of the programmable divider.

Pulse swallow count system is employed. A couple of programable divider (swallow counter and programmable counter) can be selected.


PSC
fosc
Prescaler
1/M or 1/(M+1)
Swallow counter 1/N1
Programmable counter
1/N2
controller
fr'
Programmable divider
(N1<N2)

$$f_{osc} = \{(M+1)\,N_1 + M\,(N_2 - N_1)\}\,f_r'$$
$$= (MN_2 + N_1)\,f_r'$$


M+1
M
Prescaler
N1
Swallow counter
N2
Programmable counter
N2 – N1

The prescaler at first starts the frequency division with the ration M+1. Then swallow counter and programmable counter start counting simultaneously. When N1 inputs are applied, swallow counter stops counting. Then the frequency division ratio of the prescaller is switched to M. Programmable counter continues to count however and stops when the input reaches N2. The frequency division ratio of the prescaller switches back to M+1 and swallow counter and programmable counter start to count again.

FM reception employs the pulse swallow count system. AM reception does not employ the pulse swallow count system but employs the direct frequency division system and so only programmable counter is operated.

2. GENERAL DESCRIPTION OF LOGIC IC (IC901)

a) IC901 μPD1714G-630

This IC includes PLL and controller is a C-MOS LSI for digital tuning of FM/MW/LW PLL frequency synthesizer system and controls such functions as FM/MW/LW automatic channel selection, preset memory and frequency digital display with Prescaler and liquid crystal digital frequency display driver. It is packed in a 64-pin flat package.

3. AUTO STOP

If count start, when High level signal is applied to SD terminal (Pin No. 15). Then IF frequency became 10.7MHz ±30kHz at FM or 450kHz ±5kHz at MW or 450kHz ±600Hz at LW. When SD and IF is agreed radio auto search tuning stops.

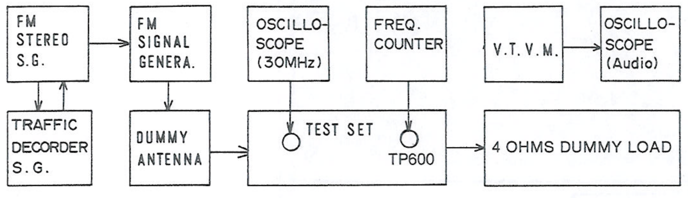
ALIGNMENT PROCEDURES

TRAFFIC DECORDER ALIGNMENT (SK. DK)

1. Test equipment required

- FM SIGNAL GENERATOR
- FM STEREO SIGNAL GENERATOR
- TRAFFIC DECORD SIGNAL GENERATOR
- FREQUENCY COUNTER
- V.T.V.M.
- OSCILLOSCOPE (30 MHz)
- OSCILLOSCOPE (Audio)
- 4 OHMS DUMMY LOAD

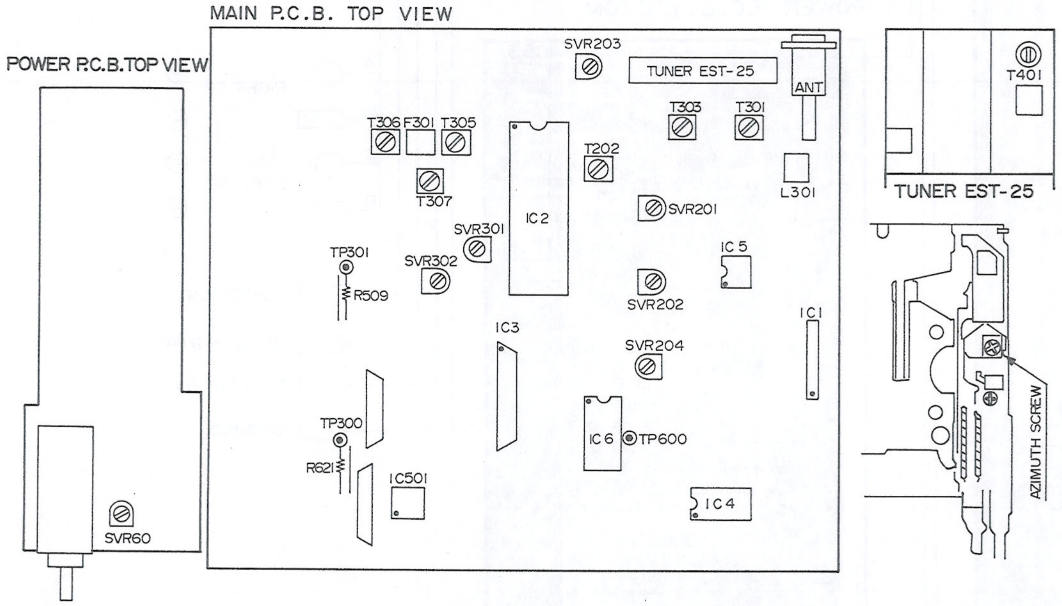
2. Traffic decorder test equipment set-up diagram


FM STEREO S.G.
FM SIGNAL GENERA.
OSCILLO-SCOPE (30MHz)
FREQ. COUNTER
V.T.V.M.
OSCILLO-SCOPE (Audio)
TRAFFIC DECORDER S.G.
DUMMY ANTENNA
TEST SET
TP600
4 OHMS DUMMY LOAD

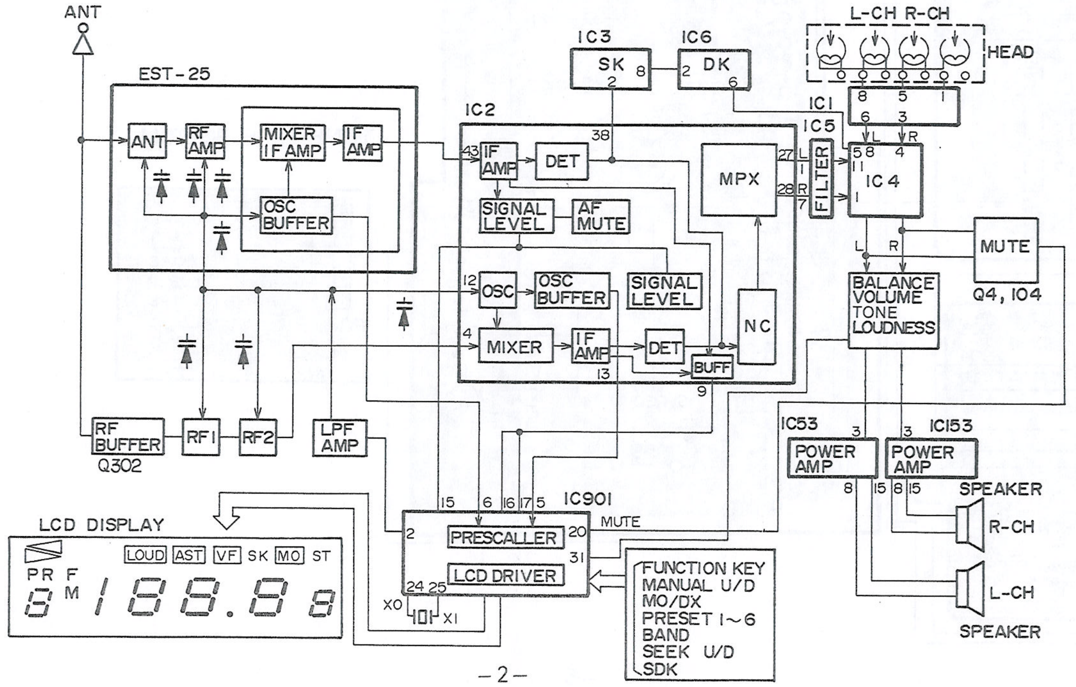
3. Alignment procedure

Step	Signal Input	FM Signal Generator	FM Stereo S.G.	Traffic Decord S.G.	Dial Setting of Radio	Adjustment
1	Through antenna dummy (Fig. 2)	No signal condition SDK button on position	——	——	——	Connect frequency counter to TP600 and common ground Adjust SVR204 for frequency to be 125 ±1 Hz.
2		——	19 kHz Pilot signal OFF 22.5 kHz dev.	SK 3.75 kHz dev. DK 30% mod. BK 60% mod.	98.00 MHz	When volume minimum and SDK button on position SVR 60 for output voltage to be 450 mV. (speaker terminal)

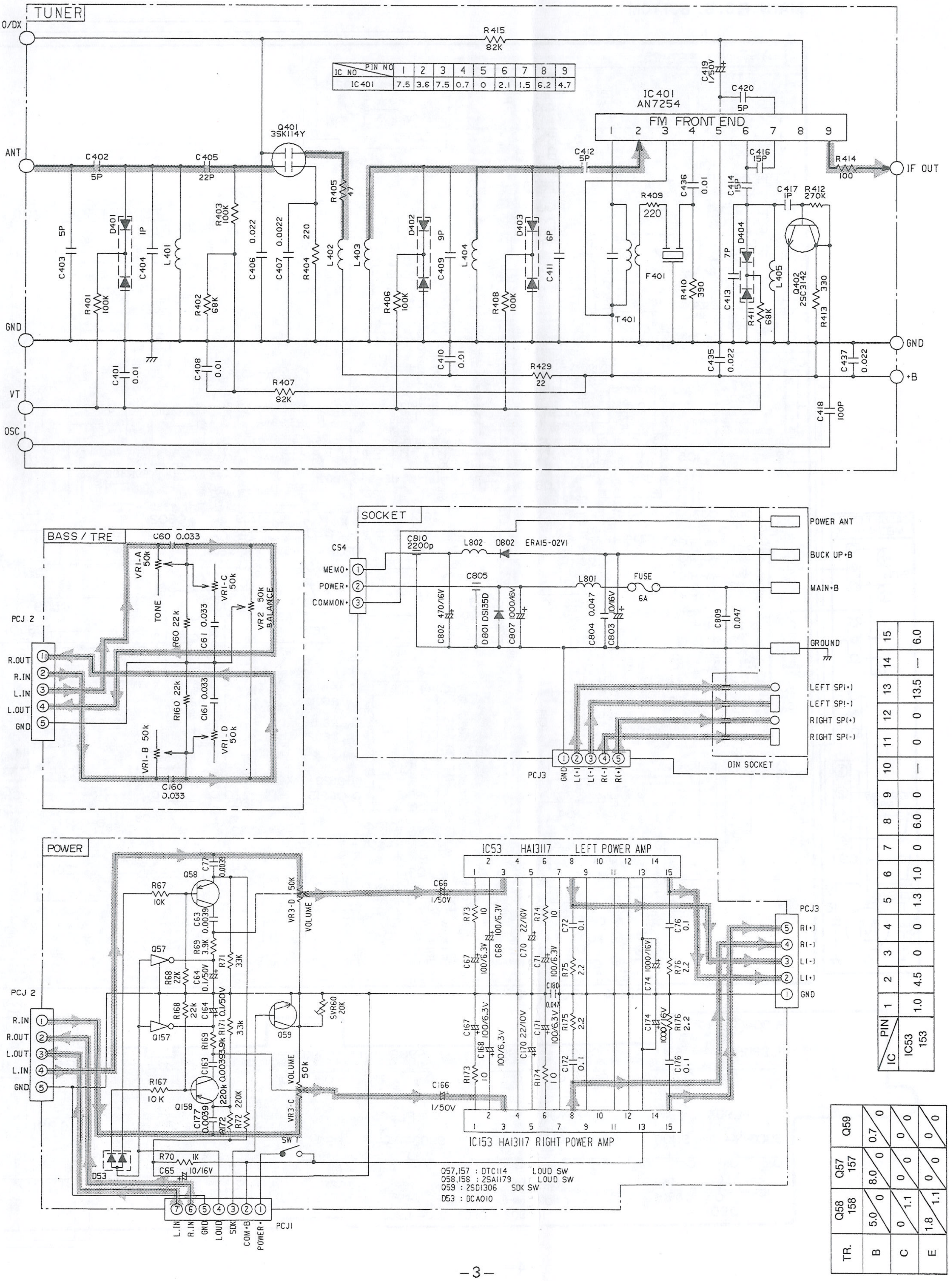
MAIN PARTS IDENTIFICATION ILLUSTRATION


MAIN P.C.B. TOP VIEW
POWER P.C.B.TOP VIEW
SVR203
TUNER EST-25
ANT
T401
T303
T301
T306
F301
T305
T202
T307
IC2
SVR201
L301
TUNER EST-25
SVR301
TP301
SVR302
R509
IC5
SVR202
IC3
IC1
SVR204
TP300
R621
IC6
TP600
IC501
IC4
SVR60
AZIMUTH SCREW

BLOCK DIAGRAM


ANT
EST-25
ANT
RF AMP
MIXER IF AMP
IF AMP
OSC BUFFER
RF BUFFER
Q302
RF1
RF2
LPF AMP
IC3
SK
IC6
DK
IC2
IF AMP
DET
SIGNAL LEVEL
AF MUTE
MPX
OSC
OSC BUFFER
SIGNAL LEVEL
MIXER
IF AMP
DET
BUFF
NC
IC1
IC5
FILTER
IC4
L-CH R-CH
HEAD
MUTE
Q4, 104
BALANCE VOLUME TONE LOUDNESS
IC53
POWER AMP
IC153
POWER AMP
SPEAKER
R-CH
L-CH
SPEAKER
IC901
PRESCALLER
LCD DRIVER
MUTE
X0
X1
FUNCTION KEY
MANUAL U/D
MO/DX
PRESET 1~6
BAND
SEEK U/D
SDK
LCD DISPLAY
LOUD
AST
VF
SK
MO
ST
PR
F
M

SCHEMATIC DIAGRAM

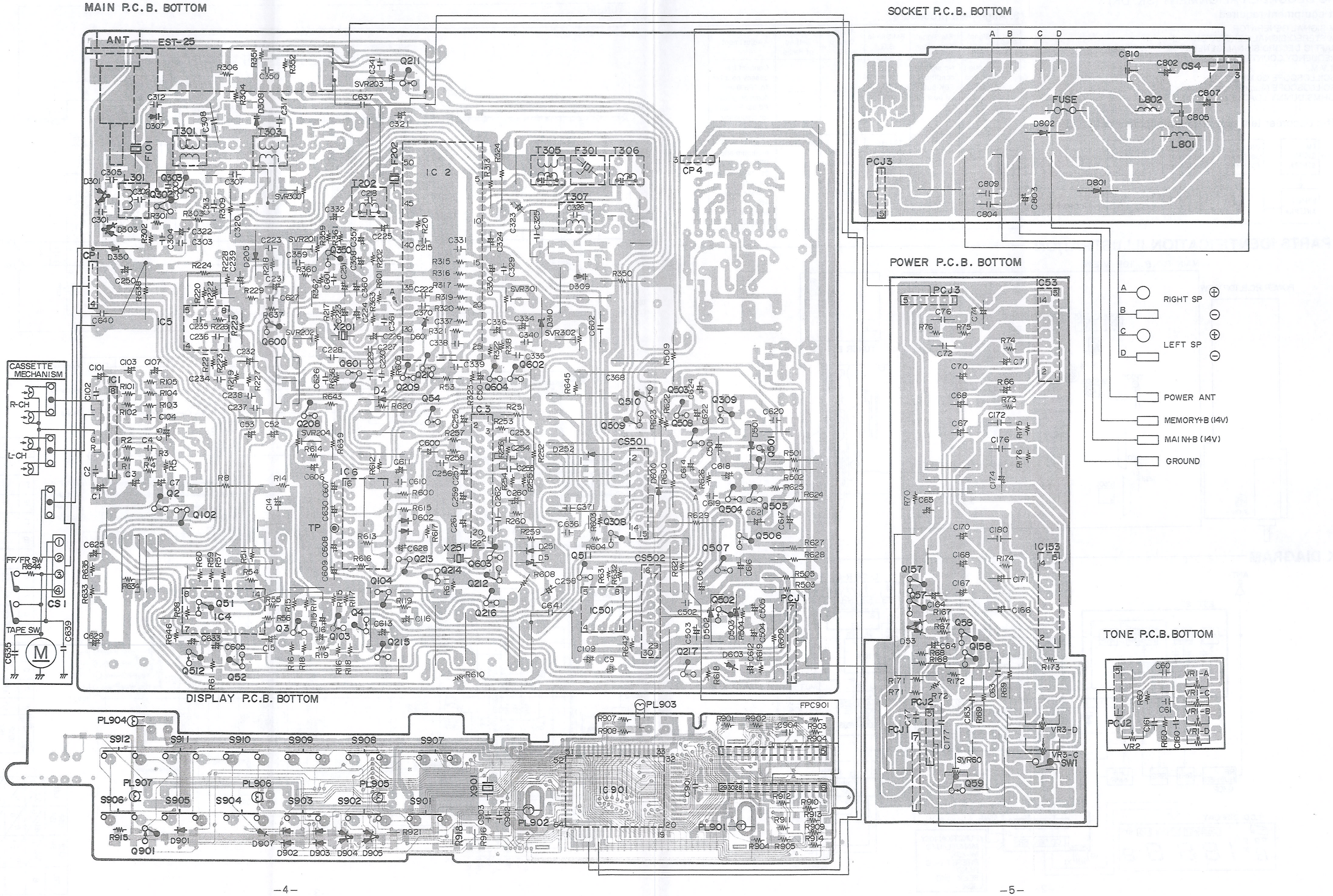

TUNER
LO/DX
ANT
GND
VT
OSC
IC401
AN7254
FM FRONT END
IF OUT
GND
+B
Q401
3SK114Y
Q402
2SC3142
F401
T401
BASS / TRE
PCJ 2
R.OUT
R.IN
L.IN
L.OUT
GND
VR1-A 50k
VR1-C 50k
TONE
VR2 50k BALANCE
VR1-B 50k
VR1-D 50k
SOCKET
CS4
MEMO
POWER
COMMON
POWER ANT
BUCK UP+B
MAIN+B
GROUND
LEFT SP(+)
LEFT SP(-)
RIGHT SP(+)
RIGHT SP(-)
DIN SOCKET
PCJ3
FUSE
6A
POWER
IC53 HA13117 LEFT POWER AMP
IC153 HA13117 RIGHT POWER AMP
VOLUME
SVR60 20K
PCJ3
R(+)
R(-)
L(-)
L(+)
GND
PCJ1
L.IN
R.IN
GND
LOUD
SDK
COM-B
POWER+
SW
Q57,157 : DTC114 LOUD SW
Q58,158 : 2SA1179 LOUD SW
Q59 : 2SD1306 SDK SW
D53 : DCA010

IC NO \ PIN NO	1	2	3	4	5	6	7	8	9
IC401	7.5	3.6	7.5	0.7	0	2.1	1.5	6.2	4.7

IC \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IC53 153	1.0	4.5	0	0	1.3	1.0	0	6.0	0	—	0	0	13.5	—	6.0

TR.	Q58 158	Q57 157	Q59
B	5.0 / 0	8.0 / 0	0.7 / 0
C	0 / 1.1	0 / 0	0 / 0
E	1.8 / 1.1	0 / 0	0 / 0

WIRING DIAGRAM


MAIN P.C.B. BOTTOM
SOCKET P.C.B. BOTTOM
POWER P.C.B. BOTTOM
TONE P.C.B. BOTTOM
DISPLAY P.C.B. BOTTOM
ANT
EST-25
CASSETTE MECHANISM
R-CH
L-CH
FF/FR SW
TAPE SW
CS1
M
IC1
IC2
IC3
IC4
IC5
IC6
IC501
IC53
IC153
IC901
CP1
CP4
CS501
CS502
CS4
PCJ
PCJ1
PCJ2
PCJ3
FPC901
TP
X201
X251
X901
T301
T303
T305
T306
T307
T202
L301
L801
L802
F101
F202
F301
FUSE
A
B
C
D
RIGHT SP
LEFT SP
⊕
⊖
⊕
⊖
POWER ANT
MEMORY+B (14V)
MAIN+B (14V)
GROUND
VR1-A
VR1-B
VR1-C
VR1-D
VR2
VR3-C
VR3-D
SVR60
SW1
PL901
PL902
PL903
PL904
PL905
PL906
PL907
S901
S902
S903
S904
S905
S906
S907
S908
S909
S910
S911
S912
Q901
D901
D902
D903
D904
D905
D907

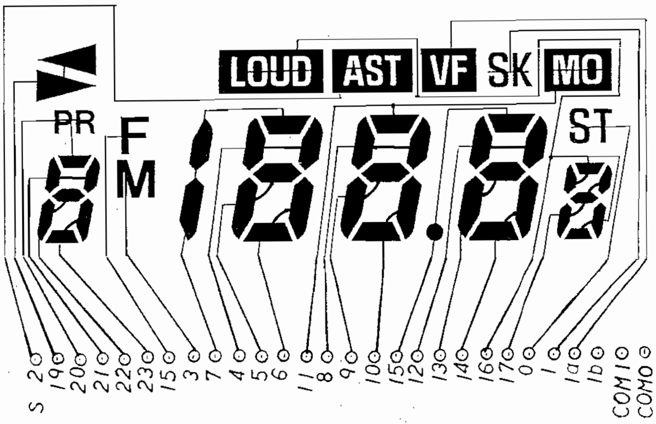
CIRCUIT DESCRIPTION

DESCRIPTION (μPD1714G-630-12)

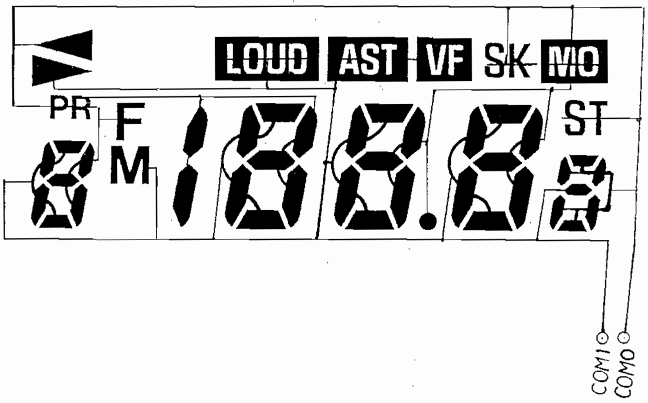
<table>
<tr><th rowspan="2">PIN NO.</th><th colspan="2">SYMBOL</th><th rowspan="2">FUNCTIONAL EXPLANATION</th></tr>
<tr><th>IN</th><th>OUT</th></tr>
<tr><td>1</td><td></td><td></td><td>NC</td></tr>
<tr><td>2</td><td></td><td>E01</td><td>Phase detector output</td></tr>
<tr><td>3</td><td></td><td></td><td>NC</td></tr>
<tr><td>4</td><td colspan="2">GND</td><td>GND</td></tr>
<tr><td>5</td><td>AM</td><td></td><td>AM OSC input</td></tr>
<tr><td>6</td><td>FM</td><td></td><td>FM OSC input</td></tr>
<tr><td>7</td><td>CE1</td><td></td><td>Chip enable 1 (+5V)</td></tr>
<tr><td>8</td><td colspan="2">GND</td><td>GND</td></tr>
<tr><td>9</td><td></td><td>CE2</td><td>Controller Data Line</td></tr>
<tr><td>10</td><td></td><td>SO</td><td>Controller Data Line</td></tr>
<tr><td>11</td><td></td><td>SC</td><td>Controller Data Line</td></tr>
<tr><td>12</td><td>SI</td><td></td><td>Controller Data Line</td></tr>
<tr><td>13</td><td>CE3</td><td></td><td>Chip enable 3</td></tr>
<tr><td>14</td><td>SK</td><td></td><td>SK signal input</td></tr>
<tr><td>15</td><td>SD</td><td></td><td>Channel reception Signal input for suto stop (Active High)</td></tr>
<tr><td>16</td><td colspan="2">AM IF</td><td>AM IF input</td></tr>
<tr><td>17</td><td colspan="2">FM IF</td><td>FM IF input</td></tr>
<tr><td>18</td><td>TAIN</td><td></td><td>TAPE signal input</td></tr>
<tr><td>19</td><td>TA. R</td><td></td><td>TAPE indication input</td></tr>
<tr><td>20</td><td></td><td>MUTE</td><td>Mute signal output (Active Low)</td></tr>
<tr><td>21</td><td></td><td>SDK</td><td>SDK signal output</td></tr>
<tr><td>22</td><td></td><td>FM BAND</td><td rowspan="2"><table><tr><td>PIN</td><td>FM</td><td>MW</td><td>LW</td></tr><tr><td>FMB AND</td><td>HIGH</td><td>LOW</td><td>HIGH</td></tr><tr><td>AMB AND</td><td>LOW</td><td>HIGH</td><td>HIGH</td></tr></table></td></tr>
<tr><td>23</td><td></td><td>AM BAND</td></tr>
<tr><td>24</td><td>X0</td><td></td><td>Input side of inverter for OSC</td></tr>
<tr><td>25</td><td></td><td>X1</td><td>Output side of inverter for OSC</td></tr>
<tr><td>26</td><td colspan="2">VDD</td><td>VDD (+5V)</td></tr>
<tr><td>28</td><td></td><td>SE</td><td>SECURITY signal output</td></tr>
<tr><td>27</td><td></td><td>DOLBY</td><td>DOLBY signal output</td></tr>
<tr><td>29</td><td></td><td>ST/MO</td><td>STEREO MONO signal output</td></tr>
<tr><td>30</td><td></td><td></td><td>NC</td></tr>
<tr><td>31</td><td></td><td>LOUD</td><td>LOUNDNESS signal output</td></tr>
<tr><td>32</td><td></td><td>S23</td><td>LCD 23 output for LCD</td></tr>
<tr><td>33</td><td></td><td>S22</td><td>LCD 22 output for LCD</td></tr>
<tr><td>34</td><td></td><td>S21</td><td>LCD 21 output for LCD</td></tr>
<tr><td>35</td><td></td><td>S20</td><td>LCD 20 output for LCD</td></tr>
<tr><td>36</td><td></td><td>S19</td><td>LCD 19 output for LCD</td></tr>
<tr><td>37</td><td></td><td>S18</td><td>LCD 18 output for LCD</td></tr>
<tr><td>38</td><td></td><td>S17</td><td>LCD 17 output for LCD</td></tr>
<tr><td>39</td><td></td><td>S16</td><td>LCD 16 output for LCD</td></tr>
<tr><td>40</td><td></td><td>S15</td><td>LCD 15 output for LCD</td></tr>
<tr><td>41</td><td></td><td>S14</td><td>LCD 14 output for LCD</td></tr>
<tr><td>42</td><td></td><td>S13</td><td>LCD 13 output for LCD</td></tr>
<tr><td>43</td><td></td><td>S12</td><td>LCD 12 output for LCD</td></tr>
<tr><td>44</td><td></td><td>S11</td><td>LCD 11 output for LCD</td></tr>
<tr><td>45</td><td></td><td>S10</td><td>LCD 10 output for LCD</td></tr>
<tr><td rowspan="2">46</td><td rowspan="2"></td><td>KS9</td><td>Key matrix return signal output.</td></tr>
<tr><td>S 9</td><td>LCD 9 output for LCD</td></tr>
<tr><td rowspan="2">47</td><td rowspan="2"></td><td>KS8</td><td>Key matrix return singal output</td></tr>
<tr><td>S 8</td><td>LCD 8 output for LCD</td></tr>
<tr><td>48</td><td></td><td>S 7</td><td>LCD 7 output for LCD</td></tr>
<tr><td>49</td><td></td><td>S 6</td><td>LCD 6 output for LCD</td></tr>
</table>

PIN NO.	SYMBOL IN	SYMBOL OUT	FUNCTIONAL EXPLANATION
50		S 5	LCD 5 output for LCD
51		KS4	Key matrix return signal output
		S 4	LCD 4 output for LCD
52		KS 3	Key matrix return signal output.
		S 3	LCD 3 output for LCD
53		KS2	Key matrix reyurn signal output.
		S 2	LCD 2 output for LCD
54		KS1	Key matrix return signal output.
		S 1	LCD 1 output for LCD
55		KS 0	Key matrix return signal output.
		S 0	LCD 0 output for LCD
56		COM0	COMMON SIGNAL 0 output for LCD.
57		COM1	COMMON SIGNAL 1 output for LCD.
58			NC
59	K3		Key return signal input 3
60	K2		Key return signal input 2
61	K1		Key return signal input 1
62	K0		Key return signal input 0
63	AD		Signal mater Level input
64	ST		STEREO signal input

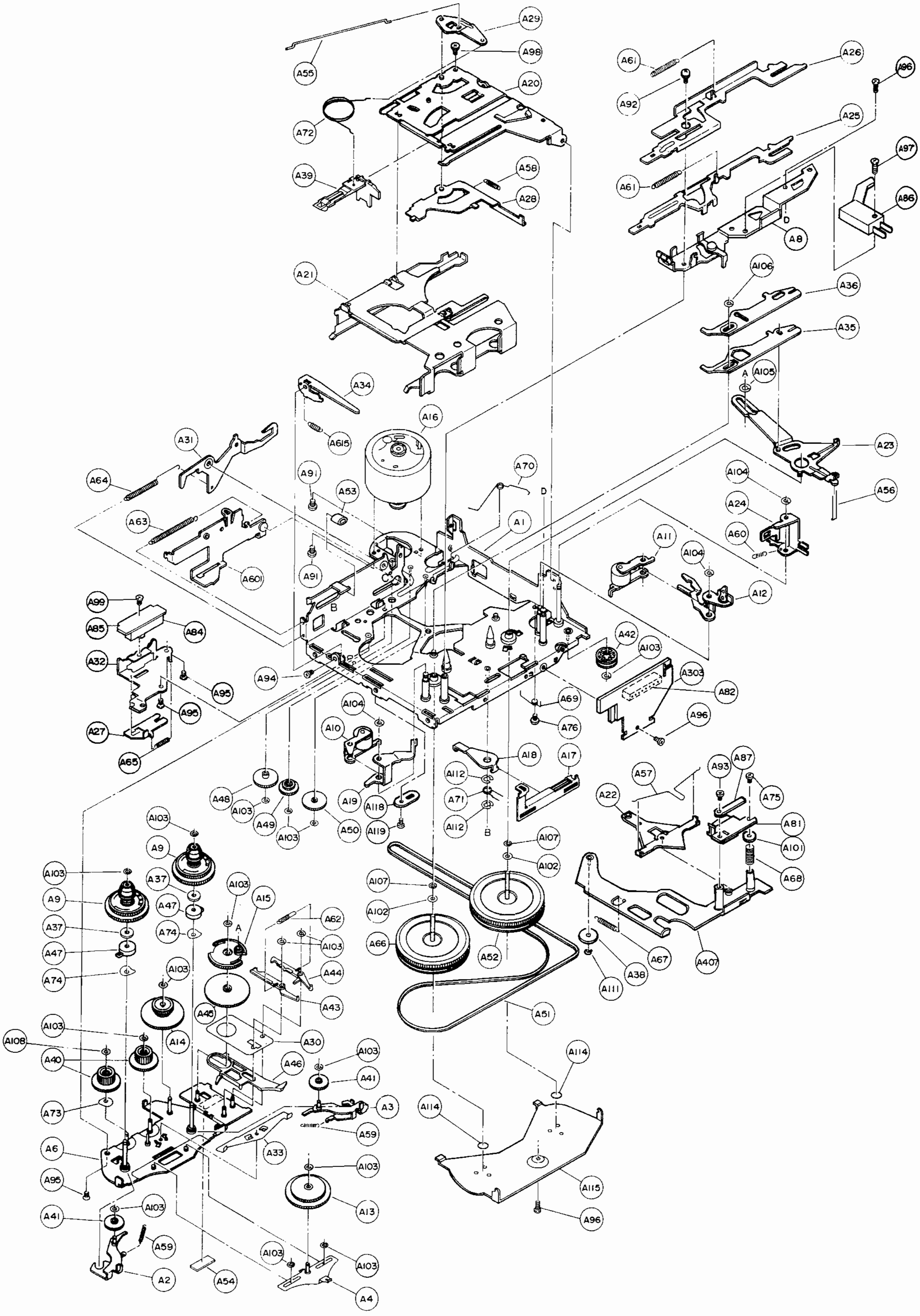
SEGMENT



COMMON



EXPLODED VIEW (CASSETTE MECHANISM)



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A106
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A615
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A70
A64
A91
A53
A104
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A24
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A63
A11
A104
A601
A91
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A4

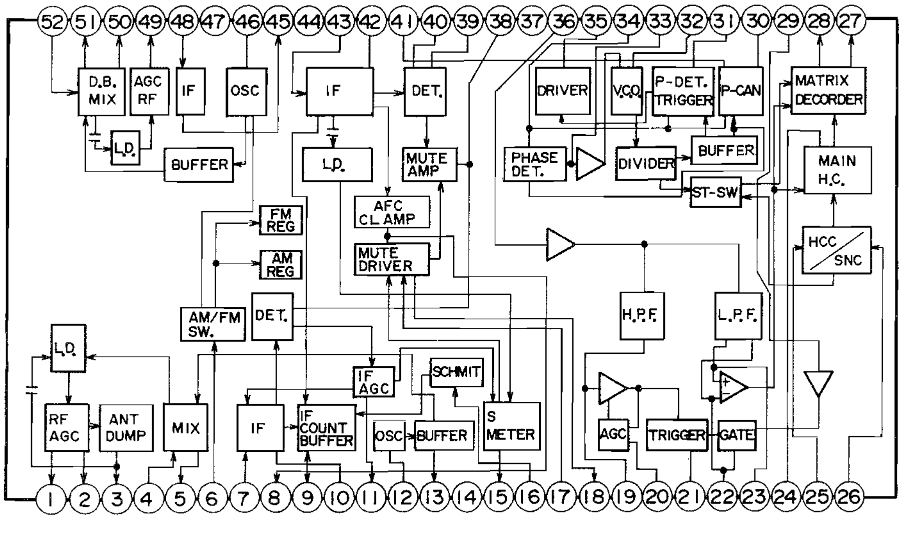
PARTS LIST (CASSETTE MECHANISM)

Ref.No	PART No.	DESCRIPTION	Q'ty
CASSETTE MECHANISM (R-S97295A)			
A1	632 501 7891	CHASSIS ASS'Y, MAIN	1
A2	TN-D002-E11/1	PLATE ASS'Y, GEAR A	1
A3	TN-D002-E11/2	PLATE ASS'Y, GEAR B	1
A4	TN-D003-E05	PLATE ASS'Y, FR GEAR	1
A6	TN-D010-D02	REEL PLATEASS'Y	1
A8	TN-D013-E08/2	PLATE ASS'Y, SIDE	1
A9	TN-D016-E12/2	REEL ASS'Y, GEAR	2
A10	TN-D017-E11/1	PINCH ROLLER ASS'Y, A	1
A11	TN-D017-E11/2	PINCH ROLLER ASS'Y, B	1
A12	TN-D022-E09	LEVER ASS'Y, TURN	1
A13	TN-D040-E02	GEAR ASS'Y, FR	1
A14	TN-D043-E01	GEAR ASS'Y, TAKE UP	1
A15	TN-D044-E01	GEAR ASS'Y, CHANGE	1
A16	R-S57368B	DC MOTOR	1
A17	TN-D112-E06	CAM, FR B	1
A18	TN-D112-E07	CAM, FR C	1
A19	TN-D112-E10	CAM, FR D	1
A20	632 501 7907	PLATE ASS'Y, ACTION	1
A21	TN-D122-C03	CASE, CASSETTE	1
A22	TN-D152-E06	LINK, CHANGE A	1
A23	TN-D152-D03	LINK, CHANGE B	1
A24	TN-D154-E07/1	PLATE ASS'Y, FR CANCELL	1
A25	TN-D155-DE14/2	LEVER, FR A	1
A26	TN-D155-DE15/2	LEVER, FR B	1
A27	632 501 7914	BRACKET ASS'Y, ACTUATER A	1
A28	TN-D174-E07	PLATE, TURN A	1
A29	TN-D174-E08	PLATE, TURN B	1
A30	TN-D184-E02	SHEET, THRUST	1
A31	TN-D192-E02	ARM, ACTION	1
A32	632 501 7921	CHASSIS, SUB	1
A33	TN-D201-E03	LEVER, SENSER A	1
A34	TN-D202-E06	PLATE, LOCK B	1
A35	TN-D214-E03	LEVER, CHANGE A	1
A36	TN-D214-E04	LEVER, CHANGE B	1
A37	TN-D135-E06	FELT, FRICTION B	2
A38	TN-D117-E16	ROLLER, HEAD PLATE B	1
A39	TN-D121-C02	STOPPER, CASSETTE	1
A40	TN-D146-E09	GEAR, TAKE UP C	2
A41	TN-D146-E10	GEAR, TAKE UP D	2
A42	TN-D151-E06/2	PULLEY, IDLE	1
A43	TN-D156-E05	CAM, HOOK A	1
A44	TN-D156-E06	CAM, HOOK B	1
A45	TN-D196-E02	GEAR, CHANGE A	1
A46	TN-D201-D04	LEVER, SENSER B	1
A47	TN-D201-E04	LEVER, SENSER C	2
A48	TN-D212-E08	GEAR, IDLE A	1
A49	TN-D212-E11	GEAR, IDLE B	1
A50	TN-D212-E10	GEAR, IDLE C	1
A51	TN-D144-E11	BELT	1
A52	TN-D145-DE03/1	FLYWHEEL	1
A53	TN-CR60.3-5-6	SLEEVE, TUBE	1
A54	TN-D135-E08	FELT	1
A55	TN-D165-E02	WIRE SPRING	1
A56	TN-D166-E10	WIRE SPRING, ACTUATER B	1
A57	TN-D197-E02	WIRE SPRING, PINCH ROLLER	1
A58	TN-Z701-E27	COIL SPRING, 1	1
A59	TN-Z701-E28	COIL SPRING, 1	2
A60	TN-Z701-E29	COIL SPRING, 1	1
A61	TN-Z701-E36	COIL SPRING, 1	2
A62	TN-Z702-E85	COIL SPRING, 2	1
A63	TN-Z702-E86	COIL SPRING, 2	1
A64	TN-Z702-E87	COIL SPRING, 2	1
A65	632 501 7938	COIL SPRING, 2	1
A66	TN-D145-DE04/1	FLYWHEEL	1
A67	632 501 7945	COIL SPRING, 2	1
A68	632 505 8771	COMPRESSION SPRING, 2	1
A69	TN-Z722-E03	TORSION SPRING, 2	1
A70	TN-Z722-E04	TORSION SPRING, 2	1
A71	TN-Z723-E12	TORSION SPRING, 3	1
A72	TN-Z730-E01	TORSION SPRING, 10	1
A73	TN-P504-E05/3	PLATE SPRING	1
A74	TN-P504-E15	PLATE SPRING	2
A75	632 505 8788	SPECIAL SCREW	1
A76	TN-D230-E02	SPECIAL SCREW	1
A81	R-S07636-1	PLAYBACK HEAD	1
A82	TN-P061-D46	SLIDE SWITCH	1
A84	TN-P061-D45	SLIDE SWITCH	1
A85	632 501 7952	PC BOARD, SWITCH B	1
A86	TN-MLS-15	SLIDE SWITCH, MICRO	1
A87	TN-D211-E03	WIRE BAND	1
A91	TN-M26X3PA	SPECIAL SCREW, PAN	2
A92	TN-M26X4.5SEM	SPECIAL SCREW, SEMS	1
A93	TN-M2X5	SPECIAL SCREW, BIND	1
A94	TN-M2X2S	SPECIAL SCREW	1
A95	TN-M2X3S	SPECIAL SCREW	3
A96	TN-M2X3ST	SPECIAL SCREW	3
A97	TN-M17X6	SPECIAL SCREW	1
A98	TN-M2X4ST	SPECIAL SCREW	1
A99	632 501 7969	SPECIAL SCREW	1
A101	TN-Z200E03/58	SPECIAL WASHER	1
A102	TN-Z204-E01/6	SPECIAL WASHER, PS	2
A103	TN-Z205-E01/1	SPECIAL WASHER, PS	16
A104	TN-Z205-E01/3	SPECIAL WASHER, PS	3
A105	TN-Z205-E01/7	SPECIAL WASHER, PS	1
A106	TN-Z205-E01/8	SPECIAL WASHER, PS	1
A107	TN-Z204-E01/15	SPECIAL WASHER, PS	2
A108	TN-Z204E01/13	SPECIAL WASHER, PS	1
A111	TN-Z100E01/01	RING, E	1
A112	TN-Z100E01/08	RING, E	2
A114	TN-D183-E01	BRACKET SHAFT, THRUST	2
A115	TN-D159-E06	BRACKET, FLYWHEEL	1
A303	TN-PC-249	PC BOARD, SWITCH A	1
A407	632 505 8795	PLATE ASS'Y, HEAD	1
A601	632 501 7976	LEVER ASS'Y, EJECT	1
A615	632 501 7983	COIL SPRING, 2	1
A118	R-1172356A	BRACKET, SHAFT	1
A119	411 034 6409	SCR FLT 3X6	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

IC FUNCTIONS

ST3012



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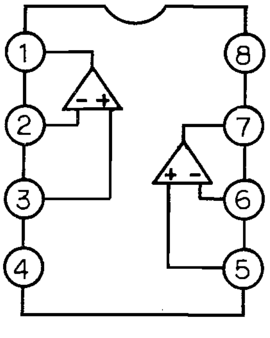
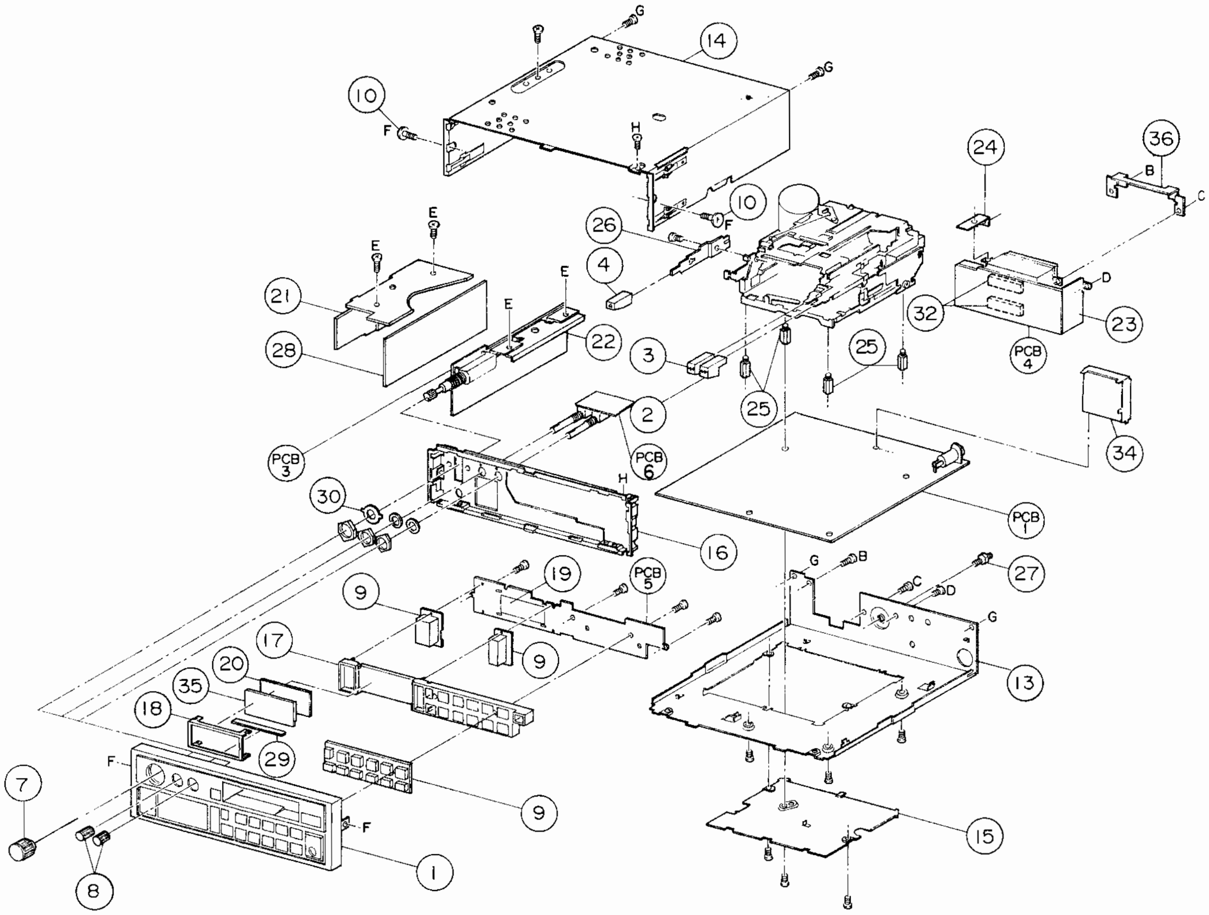


EXPLODED VIEW (CABINET & CHASSIS)



PARTS LIST

Ref.No	PART No.	DESCRIPTION	Q'ty
INDIVIDUAL			
	R-4079910	INDIVIDUAL CARTON CASE	1
	R-4177152	STYRO-FOAM CUSHION	2
	R-357676	POLYETHYLENE BAG	1
ACCESSORY			
	R-47701963	INSTRUCTION BOOK	1
	R-47701213	GUARANTEE CARD	1
	R-47701958	STICKER	2
	R-S874377	BRACKET ASS'Y	1
	R-1572388	WIRE SPRING, SHAFT	2
	R-S17558	FUSE, 6A 125V	1
	R-357527-1	POLYETHYLENE BAG	1
	R-357528-1	POLYETHYLENE BAG	1
CABINET			
1	R-A708604	NOSE PANEL ASS'Y	1
2	R-3978585-1	KNOB, F.F.	1
3	R-3978586-1	KNOB, REWIND	1
4	R-3978587-1	KNOB, EJECT	1
7	R-3977310	KNOB, VOLUME	1
8	R-3976442A	KNOB, VOLUME	2
9	R-4471323-6	RUBBER SHEET	1
10	R-1572793	SPECIAL SCREW	2
	412 016 5403	SPECIAL SCREW	4
	411 047 5604	SCR PAN+FLG 3X12	1
	R-47701587	CAUTION LABEL, CODE	1
	R-47701964	RATING LABEL	1
	R-4777245	COVER	1
	R-4777421	CAUTION LABEL	1
	R-4777117	LABEL	1
	R-4779010	CAUTION LABEL	1
	R-47701795	CAUTION LABEL, SHIPPING	1

Ref.No	PART No.	DESCRIPTION	Q'ty
CHASSIS			
13	R-1277428	METAL CASING	1
14	632 503 0968	TOP LID ASS'Y	1
15	R-1276779A	BOTTOM LID	1
16	R-1276567-1	FRONT CHASSIS	1
	411 028 5906	SCR S-TPG PAN 2.6X5	6
17	R-3871076A	REFLECTOR, LCD	1
18	R-1277210	BRACKET, LCD	1
19	R-47701040	SHEET, LCD	1
20	R-47701039	REFLECTOR, LCD	1
21	R-2674151-3	HEAT SINK	1
22	R-1277213	BRACKET, IC	1
23	R-1276538	SHIELD CASE	1
24	R-1277427	BRACKET, SOCKET	1
25	R-1573142	SHAFT, MECHANISM	4
26	R-1277240A	LEVER, EJECT	1
	411 040 0507	SCR PAN 2.6X3	1
27	R-1571833A	SPECIAL SCREW	1
28	R-4177341	COVER, HEAT SINK	1
29	R-4471092A	CONNECTOR	1
30	R-1271053	SPECIAL WASHER, VOLUME	1
	R-437710-9	CUSHION, COVER, LCD	1
32	R-4471463A	CUSHION, DIN SOCKET	2
	R-4774737	COVER, PL	2
	R-4775228	COVER, VOLUME KNOB	1
36	R-1277212-1	BRACKET, SOCKET	1
	411 031 1209	SCR BIN 2.6X5, IC	2
	411 031 7508	SCR BIN 3X5, HEAT SINK	1
	411 028 5906	SCR S-TPG PAN 2.6X5 MECHA,BOTTOM,BRACKE	10
	411 028 5906	SCR S-TPG PAN 2.6X5 DIN SOCKET	1
	R-357339	POLYETHYLENE BAG	1
		SERIAL NUMBER LABEL	

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

Ref.No	PART No.	DESCRIPTION	Q'ty
R225	401 027 0309	CARBON 47K JA ⅙W	1
R309	401 025 1308	CARBON 150 JA ⅙W	1
R303,502	401 027 2303	CARBON 560 JA ⅙W	2
R505	401 025 7409	CARBON 220 JA ⅙W	1
R251,8	401 024 6403	CARBON 10 JA ⅙W	2
R503,624	401 024 7004	CARBON 1K JA ⅙W	2
R638,324	401 024 7004	CARBON 1K JA ⅙W	2
R623,629	401 024 7400	CARBON 10K JA ⅙W	2
R313,621	401 024 7400	CARBON 10K JA ⅙W	2
R639	401 026 7002	CARBON 3.9K JA ⅙W	1
R350	401 024 7707	CARBON 100K JA ⅙W	1
R509	401 027 5502	CARBON 6.8K JA ⅙W	1
R259	401 026 1307	CARBON 27K JA ⅙W	1
R627,628	401 026 1000	CARBON 2.7K JA ⅙W	2
R302,635	401 038 6505	MT-GLAZE 47K JA ⅒W	2
R256,603	401 038 6505	MT-GLAZE 47K JA ⅒W	2
R646	401 038 6505	MT-GLAZE 47K JA ⅒W	1
R4,104	401 037 5707	MT-GLAZE 100K JA ⅒W	2
R359,56	401 037 5707	MT-GLAZE 100K JA ⅒W	2
R58	401 037 5707	MT-GLAZE 100K JA ⅒W	1
R1,101	401 037 9101	MT-GLAZE 180 JA ⅒W	2
R504,631	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R632,218	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R219,223	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R222,315	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R316,54	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R19,119	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R304,306	401 038 2309	MT-GLAZE 270K JA ⅒W	2
R3,103	401 038 0909	MT-GLAZE 220K JA ⅒W	2
R625,613	401 038 0701	MT-GLAZE 2.2K JA ⅒W	2
R626	401 038 6307	MT-GLAZE 470 JA ⅒W	1
R352,619	401 038 6505	MT-GLAZE 47K JA ⅒W	2
R319,645	401 038 6505	MT-GLAZE 47K JA ⅒W	2
R317	401 038 6505	MT-GLAZE 47K JA ⅒W	1
R55,59	401 037 5707	MT-GLAZE 100K JA ⅒W	2
R60,57	401 037 5707	MT-GLAZE 100K JA ⅒W	2
R615	401 037 5707	MT-GLAZE 100K JA ⅒W	1
R228,601	401 037 5400	MT-GLAZE 1K JA ⅒W	2
R14,636	401 037 5400	MT-GLAZE 1K JA ⅒W	2
R637,229	401 037 5400	MT-GLAZE 1K JA ⅒W	2
R253	401 037 9200	MT-GLAZE 1.8K JA ⅒W	1
R616,643	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R642,5	401 037 5608	MT-GLAZE 10K JA ⅒W	2
R105	401 037 5608	MT-GLAZE 10K JA ⅒W	1
R254	401 038 2002	MT-GLAZE 270 JA ⅒W	1
R255	401 038 5003	MT-GLAZE 390 JA ⅒W	1
R258,220	401 038 6406	MT-GLAZE 4.7K JA ⅒W	2
R221,611	401 038 6406	MT-GLAZE 4.7K JA ⅒W	2
R201	401 038 3504	MT-GLAZE 330 JA ⅒W	1
R360	401 038 3702	MT-GLAZE 33K JA ⅒W	1
R362	401 037 7909	MT-GLAZE 1.5K JA ⅒W	1
R361	401 038 2101	MT-GLAZE 2.7K JA ⅒W	1
R363	401 038 3801	MT-GLAZE 330K JA ⅒W	1
R217,318	401 038 7700	MT-GLAZE 5.6K JA ⅒W	2
R320,61	401 038 9209	MT-GLAZE 6.8K JA ⅒W	2
R614,321	401 038 5102	MT-GLAZE 3.9K JA ⅒W	2
R17,117	401 038 5102	MT-GLAZE 3.9K JA ⅒W	2
R257	401 038 5102	MT-GLAZE 3.9K JA ⅒W	1
R617,600	401 038 0800	MT-GLAZE 22K JA ⅒W	2
R260	401 038 0800	MT-GLAZE 22K JA ⅒W	1
R633	401 037 6803	MT-GLAZE 12K JA ⅒W	1
R2,102	401 037 6803	MT-GLAZE 12K JA ⅒W	2
R322,202	401 037 8005	MT-GLAZE 15K JA ⅒W	2
R604	401 037 8005	MT-GLAZE 15K JA ⅒W	1
R323	401 038 2200	MT-GLAZE 27K JA ⅒W	1
R15,115	401 038 6604	MT-GLAZE 470K JA ⅒W	2
R301	401 038 6604	MT-GLAZE 470K JA ⅒W	1
R16,116	401 037 6902	MT-GLAZE 120K JA ⅒W	2
	401 037 5004	MT-GLAZE 0.000 ZA ⅒W	8
R351	401 038 0503	MT-GLAZE 22 JA ⅒W	1
R18,118	401 037 6704	MT-GLAZE 1.2K JA ⅒W	2
R226,227	401 038 9308	MT-GLAZE 68K JA ⅒W	2
R634	401 037 9408	MT-GLAZE 180K JA ⅒W	1
R622,605	401 035 5204	MT-GLAZE 10K JA ⅛W	2
R612,51	401 037 5103	MT-GLAZE 10 JA ⅒W	2
R620	401 036 6507	MT-GLAZE 3.9K JA ⅛W	1
	401 035 4108	MT-GLAZE 0.000 ZA ⅛W	8

POWER P.C.B. ASSEMBLY

Ref.No	PART No.	DESCRIPTION	Q'ty
PCB3	632 500 8172	PC BOARD ASS'Y, POWER	1
PCJ2	R-S370325-8	PC JOINER, 80MM 5P	1
SW1,VR3	632 501 1677	ROTARY VOLUME, 50KBX2	1
IC53,153	409 066 1608	IC HA13117	2

Ref.No	PART No.	DESCRIPTION	Q'ty
C72,172	403 067 5603	MT-COMPO 0.1U J 50V	2
C76,176	403 067 5603	MT-COMPO 0.1U J 50V	2
C74,174	403 042 4805	ELECT 1000U M 16V	2
C71,171	403 038 1603	ELECT 100U M 6.3V	2
C68,168	403 038 1603	ELECT 100U M 6.3V	2
C67,167	403 038 1603	ELECT 100U M 6.3V	2
C70,170	403 040 1707	ELECT 22U M 10V	2
C66,166	403 049 0008	ELECT 1U M 50V	2
C64,164	403 047 8402	ELECT 0.1U M 50V	2
C65	403 041 8804	ELECT 10U M 16V	1
C180	403 004 1002	CERAMIC 0.047U M 25V	1
R69,169	401 026 7002	CARBON 3.9K JA ⅙W	2
R79	401 025 7805	CARBON 2.2K JA ⅙W	1
R168	401 025 8208	CARBON 22K JA ⅙W	1
Q58,158	405 002 6706	TR 2SA1179-M6	2
Q57,157	405 000 3608	TR DTC114YK	2
Q59	405 035 6506	TR 2SD1306N-E	1
D53	407 004 0102	DIODE DCA010	1
SVR60	R-R1107154-4	PRESET RESISTOR, 20K	1
C63,163	403 001 7106	CERAMIC 3900P M 16V	2
C177	403 001 7106	CERAMIC 3900P M 16V	1
C77	403 073 4201	CERAMIC 3900P K 50V	1
	401 035 4108	MT-GLAZE 0.000 ZA ⅛W	2
R75,175	401 036 0406	MT-GLAZE 2.2 KA ⅛W	2
R76,176	401 036 0406	MT-GLAZE 2.2 KA ⅛W	2
R73,173	401 037 5103	MT-GLAZE 10 JA ⅒W	2
R74,174	401 037 5103	MT-GLAZE 10 JA ⅒W	2
R70	401 037 5400	MT-GLAZE 1K JA ⅒W	1
R67,167	401 035 5204	MT-GLAZE 10K JA ⅛W	2
R68	401 038 0800	MT-GLAZE 22K JA ⅒W	1
R171,71	401 038 3702	MT-GLAZE 33K JA ⅒W	2
R72,172	401 038 0909	MT-GLAZE 220K JA ⅒W	2
	401 037 5004	MT-GLAZE 0.000 ZA ⅒W	2

TONE P.C.B. ASSEMBLY

Ref.No	PART No.	DESCRIPTION	Q'ty
PCB6	632 500 8141	PC BOARD ASS'Y, TONE	1
VR1	R-R1107192A	ROTARY VOLUME, 50KX4	1
VR2	R-R1107194A	ROTARY VOLUME, 50K	1
C61,161	403 068 3301	CERAMIC 0.033U K 25V	2
C60,160	403 068 3301	CERAMIC 0.033U K 25V	2
	401 035 4108	MT-GLAZE 0.000 ZA ⅛W	1
R60,160	401 038 0800	MT-GLAZE 22K JA ⅒W	2

SOCKET P.C.B. ASSEMBLY

Ref.No	PART No.	DESCRIPTION	Q'ty
PCB4	632 500 8196	PC BOARD ASS'Y, SOCKET	1
	R-S17558	FUSE, 6A 125V	1
	R-S27933-1	SOCKET, DIN POWER, SP	1
CS4	632 501 2230	CORD, 120MM	1
PCJ3	R-S370325-6	PC JOINER, 60MM 5P	1
L802	R-W17068	CHOKE COIL, 3MH	1
L801	R-W67178	CHOKE COIL	1
C805,810	404 030 8102	CERAMIC 2200P M 100V	2
C804,809	403 074 3005	CERAMIC 0.047U Z 50V	2
C803	403 042 0401	ELECT 10U M 16V	1
C802	403 044 3004	ELECT 470U M 16V	1
C807	403 042 5901	ELECT 1000U M 16V	1
D801	407 005 1603	DIODE DS135D	1
D802	407 005 8800	DIODE ERA15-02V1	1

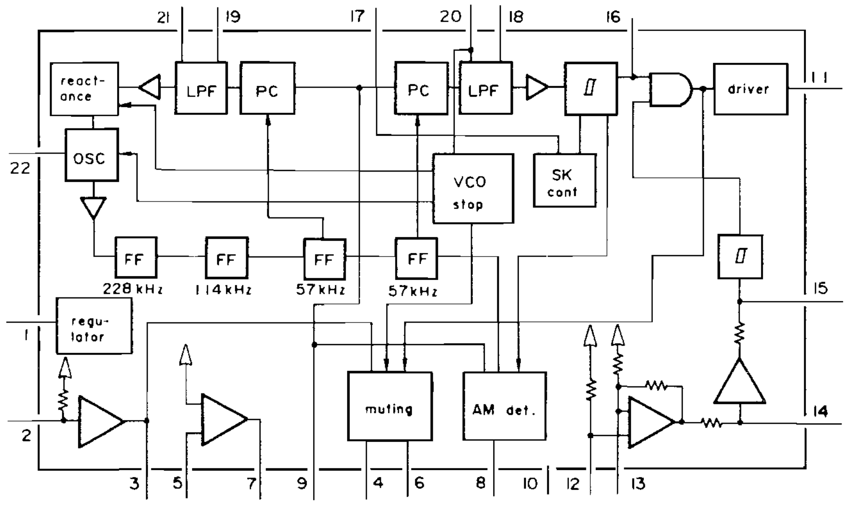
DISPLAY P.C.B. ASSEMBLY

Ref.No	PART No.	DESCRIPTION	Q'ty
PCB5	632 500 8202	PC BOARD ASS'Y, DISPLAY	1
X901	R-S17538	CRYSTAL OSCILLATOR	1
FPC901	R-S370135A	FPC BOARD	1
S901-912	R-S470217	PUSH SWITCH	12
IC901	410 033 2108	IC UPD1714G-630-12	1
D907	407 069 4909	DIODE DSB010	1
Q901	405 002 6706	TR 2SA1179-M6	1
D904,905	407 004 0607	DIODE DCB010	2
D902,903	407 065 2909	DIODE DWA010	2
D901	407 009 6208	DIODE RLS-73TE-11	1
C902,903	403 014 4000	CERAMIC 18P J 50V	2
C904	403 069 1801	CERAMIC 1000P K 50V	1
C901	403 068 4407	CERAMIC 0.047U K 25V	1
R921	401 037 5004	MT-GLAZE 0.000 ZA ⅒W	1
R916,918	401 035 4108	MT-GLAZE 0.000 ZA ⅛W	2
R905-908	401 037 3406	MT-GLAZE 82 JA ⅛W	4
R914	401 035 4603	MT-GLAZE 100 JA ⅛W	1
R909-913	401 035 5204	MT-GLAZE 10K JA ⅛W	5
R901-904	401 035 5402	MT-GLAZE 100K JA ⅛W	4
R915	401 035 5402	MT-GLAZE 100K JA ⅛W	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

IC FUNCTIONS

LA2220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228 kHz
114 kHz
57 kHz
57 kHz
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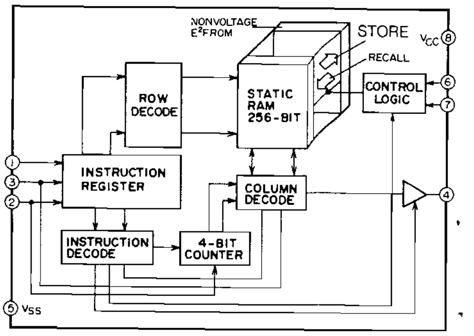
S-2444R01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CONTROL LOGIC
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4-BIT COUNTER
⑤ VSS

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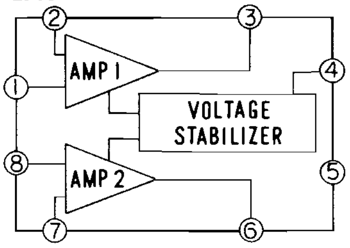
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AMP 1
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AMP 2
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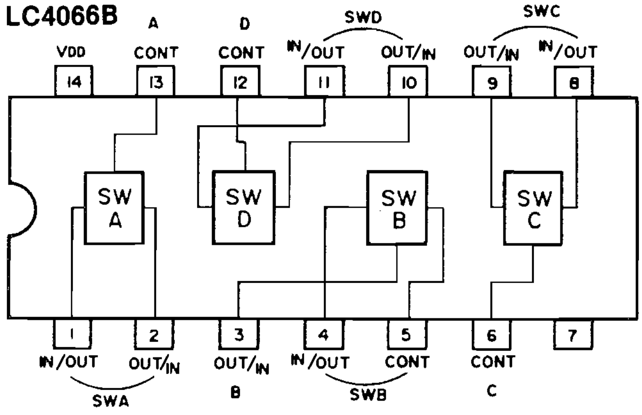
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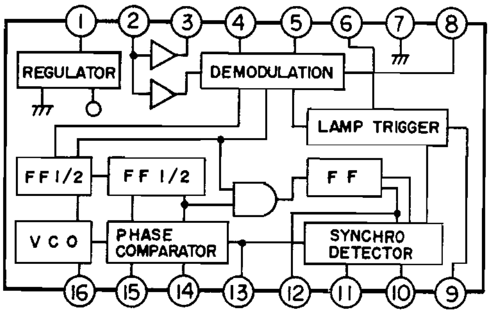
LA3361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REGULATOR
DEMODULATION
LAMP TRIGGER
FF 1/2
FF 1/2
FF
VCO
PHASE COMPARATOR
SYNCHRO DETECTOR
⑯
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⑨

PARTS LIST (CONTINUED)

Ref.No	PART No.	DESCRIPTION	Q'ty
CHASSIS ELECTRICAL			
	632 505 8078	CASSETTE MECHANISM ASS'Y, NO SERVICE	1
CS1	R-S37874-8	CORD, 80MM 4P	1
R644	401 026 9907	CARBON 4.7K JA ⅙W	1
C635,639	403 004 1002	CERAMIC 0.047U M 25V	2
34	R-S874551	TUNER	1
PL901-907	R-S17596	PILOT LAMP, 5V 60MA	7
35	632 500 4013	LIQUID CRYSTAL DISPLAY	1
MAIN P.C.B. ASSEMBLY			
PCB1	632 500 8134	PC BOARD ASS'Y, MAIN	1
TP300	R-257196-1	TERMINAL	1
CS501,502	R-377186-15	HOUSING, 15P	2
ANT	R-S27192-1A R-S27192-6	SOCKET, ANTENNA } or SOCKET, ANTENNA	1
CP4	R-S27781-3	PLUG, 3P	1
CP1	R-S27781-4	PLUG, 4P	1
PCJ1	R-S370327-8	PC JOINER, 80MM 7P	1
F301	R-S17637	CERAMIC FILTER, 450KHz	1
F202	R-S17570-1	CERAMIC FILTER, 10.700MHz	1
X201	R-S17858	CERAMIC OSCILLATOR, 19KHz	1
X251	R-S17938	CERAMIC OSCILLATOR, 57KHz	1
F101	R-W17080	PACKED C&L	1
Q501	405 073 5202	TR 2SD2012	1
IC2	409 140 1807	IC ST3012	1
IC1	409 016 7902	IC LA3161	1
IC4	409 020 8704	IC LC4066B	1
IC5	409 018 4305	IC LA6458D	1
IC3	409 016 6301	IC LA2220	1
IC6	409 016 9500	IC LA3361	1
IC501	409 143 2603	IC S-2444R01	1
L301	R-W17124	CHOKE COIL, 140μH	1
T301,303	R-W5T7073	IF TRANSFORMER, M.W.	2
T305	R-W5T7126	IF TRANSFORMER	1
T306	R-W5T7125	IF TRANSFORMER	1
T307	R-W87035	OSC COIL	1
T202	R-W5T7111-1	IF TRANSFORMER, FM	1
D307-309	407 000 5507	VARACTOR DI SVC321SP-C-3 DO NOT USE DIODES FROM DIFFERENT BAGS BUT A PAIR OF DIODES FROM A SAME BAG	3/3
D503	407 098 0903	ZENER DIODE HZS6B2L	1
D502	407 050 4703	ZENER DIODE GZA5.1X	1
D501	407 050 7704	ZENER DIODE GZA9.1Y	1
D310	407 052 2004	ZENER DIODE HZ3ALL	1
D5	407 050 3607	ZENER DIODE GZA4.7X	1
D251,252 205,4,350	407 012 4406	DIODE 1SS133	5
D600	407 012 4406	DIODE 1SS133	1
D301,303	407 004 1000	DIODE DCC010	2
D602	407 065 2909	DIODE DWA010	1
D603	407 004 8009	DIODE DSB015	1
D601	407 004 5602	DIODE DSA015	1
Q302	405 068 0809 405 068 0908	TR 2SK932-22 } or TR 2SK932-23	1
Q2,102	405 035 6506	TR 2SD1306N-E	2
Q4,104	405 035 6506	TR 2SD1306N-E	2
Q303,504	405 015 8902	TR 2SC2812-L7	2
Q505	405 015 8902	TR 2SC2812-L7	1
Q350,600	405 015 8704	TR 2SC2812-L6	2
Q601,3	405 015 8704	TR 2SC2812-L6	2
Q103,502	405 015 8704	TR 2SC2812-L6	2
Q308,512	405 015 8704	TR 2SC2812-L6	2
Q216,217	405 002 6706	TR 2SA1179-M6	2
Q208-212, 52,54, 214,215, 503,506, 507,510, 511,51, 602,604	405 000 3608	TR DTC114YK	18
Q213,509	405 029 3009	TR DTA114YK	2
SVR300	R-R1107154	PRESET RESISTOR, 1K	1
SVR204	R-R1107154-3	PRESET RESISTOR, 10K	1
SVR201, 301	R-R1107154-4	PRESET RESISTOR, 20K	2
SVR202	R-R1107154-5	PRESET RESISTOR, 50K	1
SVR203	R-R1107154-6	PRESET RESISTOR, 100K	1
SVR302	R-R1107154-7	PRESET RESISTOR, 200K	1
C321	403 049 9803	ELECT 2.2U M 50V	1
C617,622	403 041 8804	ELECT 10U M 16V	2
C505,504	403 041 8804	ELECT 10U M 16V	2
C624	403 041 8804	ELECT 10U M 16V	1

Ref.No	PART No.	DESCRIPTION	Q'ty
C615,103	403 038 1603	ELECT 100U M 6.3V	2
C616,501	403 039 6508	ELECT 100U M 10V	2
C332	403 039 6508	ELECT 100U M 10V	1
C621	403 043 9106	ELECT 47U M 16V	1
C612	403 039 2104	ELECT 47U M 6.3V	1
C322	403 039 2609	ELECT 47U M 6.3V	1
C324,336	403 040 2209	ELECT 22U M 10V	2
C330,53, 52,1,15, 101,625, 115,7,9, 107,630, 223,109	403 049 0800	ELECT 1U M 50V	14
C334	403 047 9003	ELECT 0.1U M 50V	1
C257	403 048 6902	ELECT 0.47U M 50V	1
C259	403 048 4809	ELECT 0.33U M 50V	1
C261,607 251,323, 600	403 047 0604	ELECT 4.7U M 25V	5
C225,226	403 050 0509	ELECT 2.2U M 50V	2
C250	403 050 0509	ELECT 2.2U M 50V	1
C358,360, 232,231, 239,618 629,605, 357	403 041 9405	ELECT 10U M 16V	9
C224,16	403 048 2508	ELECT 0.22U M 50V	2
C116	403 048 2508	ELECT 0.22U M 50V	1
C260,50	403 038 5403	ELECT 22U M 6.3V	2
C613	403 038 5403	ELECT 22U M 6.3V	1
C608,628	403 038 9005	ELECT 33U M 6.3V	2
C609,3	403 038 2006	ELECT 100U M 6.3V	2
C633	403 038 2006	ELECT 100U M 6.3V	1
C611,14	403 039 7307	ELECT 100U M 10V	2
C5	403 039 7307	ELECT 100U M 10V	1
C252	403 040 3701	ELECT 220U M 10V	1
C258	403 038 6301	ELECT 220U M 6.3V	1
C503	403 039 3507	ELECT 470U M 6.3V	1
C301,312	403 015 3705	CERAMIC 2P C 50V	2
C636	403 026 2902	CERAMIC 47P J 50V	1
C371	403 069 1702	CERAMIC 1000P K 50V	1
C601	403 070 5508	CERAMIC 1200P K 50V	1
C4,104	403 070 6703	CERAMIC 0.012U K 50V	2
C230,229	403 070 6703	CERAMIC 0.012U K 50V	2
C359	403 073 0005	CERAMIC 3300P K 50V	1
C302,304	403 072 1607	CERAMIC 0.022U K 50V	2
C317,300	403 072 1607	CERAMIC 0.022U K 50V	2
C329,331	403 072 1607	CERAMIC 0.022U K 50V	2
C228,313	403 072 1607	CERAMIC 0.022U K 50V	2
C341	403 072 1607	CERAMIC 0.022U K 50V	1
C350,307, 502,610, 222,256, 370,215, 340	403 130 3109	CERAMIC 0.047U K 50V	9
C619	403 073 4409	CERAMIC 0.039U K 50V	1
C335,339, 620,227, 303,	403 069 5601	CERAMIC 0.01U K 50V	5
C218	403 031 9200	CERAMIC 7P D 50V	1
C361	403 017 0900	CERAMIC 20P J 50V	1
C325,2, 235-238, 102	403 026 7501	CERAMIC 470P J 50V	7
C326	403 012 6808	CERAMIC 15P J 50V	1
C337	403 071 8102	CERAMIC 2200P K 50V	1
C338	403 075 0706	CERAMIC 6800P K 50V	1
C626,627	403 009 9409	CERAMIC 100P K 50V	2
C233,234	403 073 4201	CERAMIC 3900P K 50V	2
C305	403 075 5305	CERAMIC 8200P K 50V	1
C253,254	403 056 7205	POLYESTER 1000P J 50V	2
C255	403 059 2900	POLYESTER 2200P J 50V	1
C308	403 002 2506	CERAMIC 0.01U M 25V	1
C320	403 003 3304	CERAMIC 0.022U M 25V	1
C262	403 067 8208	MT-COMPO 0.068U J 50V	1
C602	403 001 1906	CERAMIC 0.01U M 16V	1
C606	403 092 6309	TA-SOLID 0.22U M 35V	1
C637,640	403 004 1002	CERAMIC 0.047U M 25V	2
C641	403 004 1002	CERAMIC 0.047U M 25V	1
R53	401 025 8208	CARBON 22K JA ⅙W	1
R501	401 026 8108	CARBON 4.7 JA ⅙W	1
R252	401 024 7004	CARBON 1K JA ⅙W	1
R609	401 024 7707	CARBON 100K JA ⅙W	1
R610	401 025 8000	CARBON 2.2K JA ⅙W	1
R608	401 027 0101	CARBON 4.7K JA ⅙W	1
R618	401 025 8406	CARBON 22K JA ⅙W	1
R224	401 027 0309	CARBON 47K JA ⅙W	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

FISHER

FISHER Hi-Fi Europa Vertriebs GmbH

Stahlgruberring 4 8000 München 82	Tel: 089/420 45-0 Tlx: 524033
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Funkstörmeßlabor	–127/128
Service-Zentrale	
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Hi-Fi/Audio	–168
Video	–172
Autoradio	–170
Ersatzteillager	–155/156
Techn. Schulung	–174

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Düsseldorf-Erkrath	Albert-Einstein-Straße 8 4006 Erkrath 1	Tel: 0211/200 05-0 Tlx: 8 588 563	Berlin (Fisher Vertragswerkstatt)	Drewitz & Kaulbach Eisenacher Straße 53 1000 Berlin 62	Tel: 030/781 20 01 Tlx: 186 460

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Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.
Sie sparen so wertvolle Zeit. Vielen Dank.

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